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THE FOREST SITUATION IN ONEIDA COUNTY WISCONSIN

A FOREST SURVEY..
AND NEW PUBLIC DOMAIN
PROGRESS REPORT

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U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

LAKE STATES FOREST EXPERIMENT STATION

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ST. PAUL MINN.

FOREWORD

The material in this report has been assembled for the use of the Oneida County Land Use Planning Committee.

The figures on forest land area were obtained from the Wisconsin Land Economic Survey and the Nicolet National Forest. The estimates of volume and growth, and the data on forest industries were obtained from the Forest Survey made by the Lake States Forest Experiment Station. Inasmuch as the original Forest Survey did not supply timber estimates by individual counties, the per-acre volumes are based upon averages of stands throughout northeastern Wisconsin. The estimates are not presented as being extremely reliable, but the general picture proffered is thought to be essentially correct.

The writers wish to acknowledge the assistance of Supervisor Galen Pike of the Nicolet National Forest and Mr. T. E. Kauppinen, formerly District Forester with the Wisconsin Conservation Department, in checking over and improving some of the estimates. Much of the agricultural statistics and material on the operation of county and state forests was obtained from information furnished by Mr. Harvey Becker, County Agent, and Mr. Burke of the Wisconsin Conservation Commission.

THE FOREST SITUATION IN ONEIDA COUNTY, WISCONSIN

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Lake States Forest Experiment Station 1/

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1/ Maintained by the United States Department of Agriculture,
Forest Service, at University Farm, St. Paul, Minnesota, in cooperation
with the University of Minnesota.

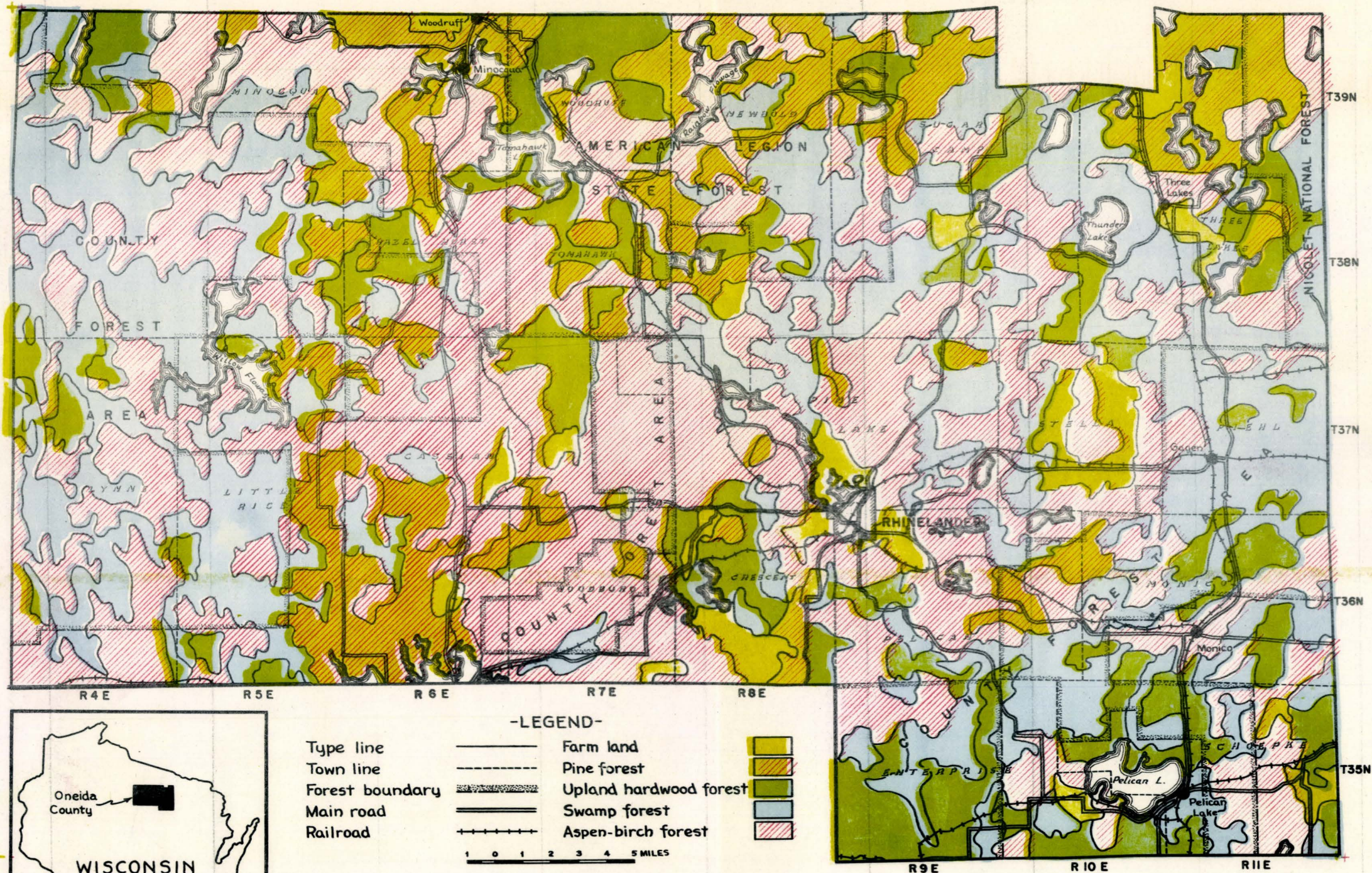


Figure 1

INTRODUCTION

Oneida County is fairly typical of the counties in the northern cut-over portion of the Lake States. Most of the original virgin timber has been removed and the second growth is still too young to yield substantial volumes of merchantable timber for industrial uses. Yet this county is somewhat above the average in the progress it has made in developing a plan of forest reconstruction.

A pioneer in land classification and rural zoning, Oneida County has definitely set aside about half of its area for forestry and recreational development. No public lands are sold for agricultural purposes in the restricted areas and every effort is made to discourage yearlong residence in districts remote from good roads and schools (fig. 2).

The County Board of Supervisors, the County Agricultural Planning Committee and its forestry subcommittee, and other civic groups take an active interest in the conservation problem. As a result of their interest, the County has set up an extensive system of County forests. The County groups are anxious to go still farther in developing both public and private forest lands to the fullest possible extent. To this end they have requested technical advice and a broad analysis of the forest problem of the County. It was to meet this request that the following material was assembled.

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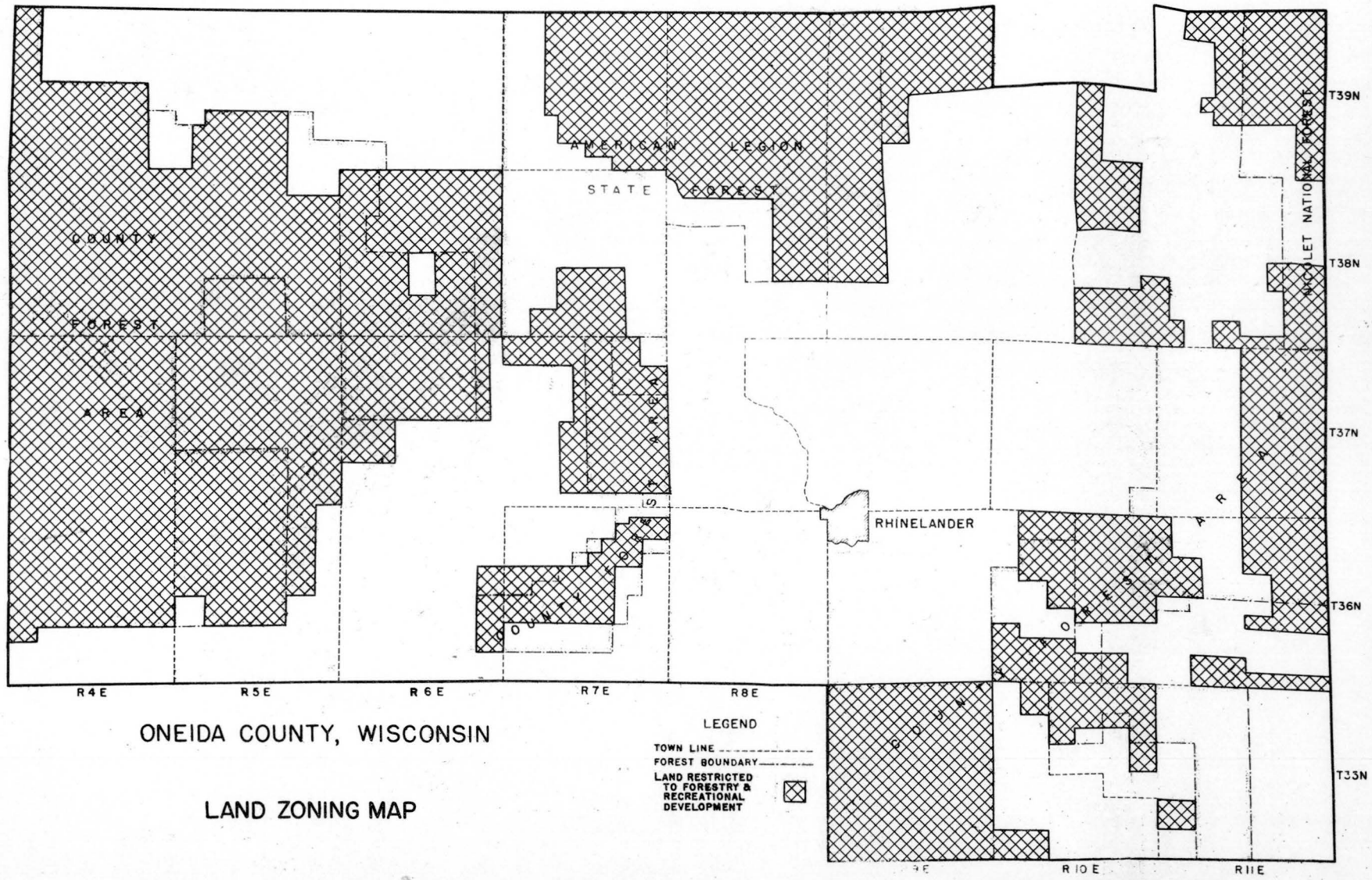


Figure 2

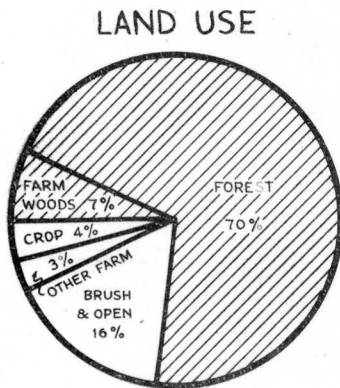
FOREST CONDITIONS

Oneida County is located in northeastern Wisconsin about 170 miles directly north of Madison. Rhinelander, a city of 8,019 inhabitants, is the principal city and county seat. The total population of the county is 15,899. The primary occupations are farming, resort management, pulp and paper manufacturing, and small-scale lumbering.

Land Use .

The gross area of the county is 728,237 acres. This includes 11,087 acres of water and 717,150 acres of land area. In addition there are 57,310 acres of meandered waters which have not been included in the county area. This water area--streams, lakes, and flowages--is a valuable recreational asset. Somewhat less than 10 percent of the county area is open farm land. The rest is principally forest, water, brush, and open land.

Table 1.--Land use in Oneida County



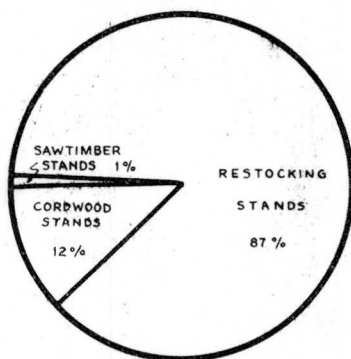
	Acres	Percent
Farms	99,400	14
Crop	31,900	4
Other open	18,200	3
Woods	49,300	7
Outside farm		
Forest	512,500	70
Brush and open	105,200	14
Water	11,100	2
Total	728,200	100

There are 792 farms with a gross area of 99,400 acres. The average farm therefore contains 126 acres. This includes 40 acres of crop land, 23 acres of other open land, and 62 acres of woods. Actually most farms have a smaller crop area than this. The County Agent's figures show that only 49 farms have as much as 100 acres of crop land, 117 have from 50 to 100 acres, 238 have from 25 to 50 acres, while 388, about half, have less than 25 acres of crop land. Because of these relatively small crop acreages, nearly half of the farmers must obtain a part of their income from off-farm jobs. Thus farmers have a direct interest in the forests and forest industries.

Kinds of Forest Land

A decided lack of balance between stands of different ages is

CLASSES OF STANDS



evident in Oneida County. Only 1 percent of forest is mature saw timber. Advanced second growth also comprises but a very small proportion of the total forest area. Eighty-seven percent of the area is made up of immature stands mostly from 1 to 25 years of age (table 2).

Table 2. Forest type areas in Oneida County, Wisconsin
(From Land Economic Survey and Nicolet National Forest)

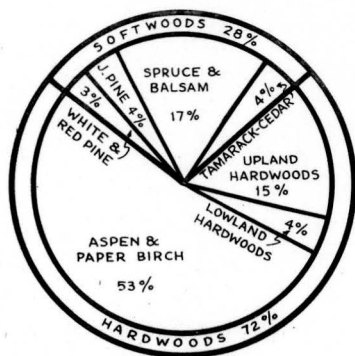
Forest type	Area in acres			
	All stands	Restocking stands	Cordwood stands	Saw timber stands
		0.3" 0.6"	3.6" 6.9" 6.12"	12"+
Pine.....	37,600	24,800	12,000	800
Spruce and balsam.....	97,800	96,600	1,200	.....
Tamarack and cedar.....	22,200	17,400	4,100	700
Upland hardwoods.....	84,100	50,600	29,700	3,800
Lowland hardwoods.....	22,300	6,500	15,800	.....
Aspen-paper birch.....	297,800	292,700	3,700	1,400
All types.....	561,800	488,600	66,500	6,700

Table 3. Volumes by species in Oneida County, Wisconsin

Species	Volumes		
	Total volume	Saw timber volume	Nonsawlog volume
	Thousand cords	Million bd. ft.	Thousand cords
Pine.....	286	47	173
Spruce and balsam.....	197	10	173
Tamarack and cedar.....	154	<u>1/</u> 3	147
Hemlock.....	149	28	82
Upland hardwoods.....	452	58	313
Lowland hardwoods.....	223	23	168
Aspen and paper birch.....	539	40	443
All species.....	2,000	209	1,499

1/ No board foot volume allowed for cedar.

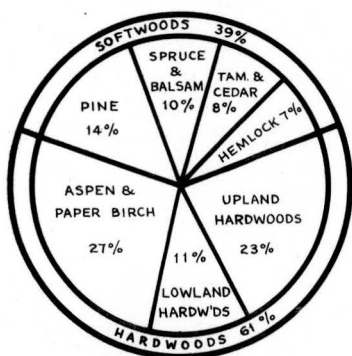
TYPE AREAS



The forests are predominantly hardwood. More than one-half of the area is occupied by aspen-birch stands. About one-fifth bears northern hardwood or lowland hardwood stands. Only slightly more than a quarter supports softwoods. Softwood forests are primarily pulping species--jack pine, spruce, and balsam fir. White and red pine stands and tamarack and cedar swamps are found on a small portion of the county area.

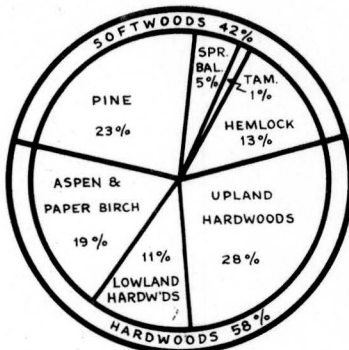
Timber Volume

TOTAL VOLUME



About three-fifths of the total cubic-foot volume of standing timber is aspen and mixed hardwoods. Aspen volume alone amounts to more than one-quarter of the total. About one-fifth of the volume is pine and hemlock and another fifth is swamp conifers (table 3).

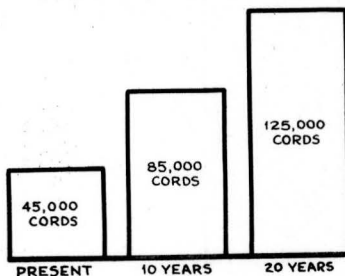
SAWTIMBER VOLUME



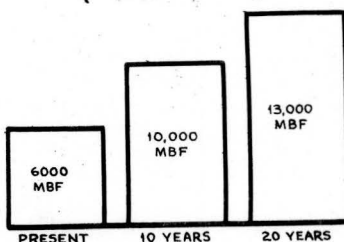
In saw timber, the proportions by species are somewhat different. Softwoods make up a slightly larger percentage of the total volume, with pine and hemlock accounting for more than one-third. About one-fifth is aspen and birch and one-quarter is northern hardwood species. There is very little saw-timber volume of spruce, balsam, and tamarack.

Growth and Allowable Drain

ALLOWABLE ANNUAL DRAIN (TOTAL VOLUME)



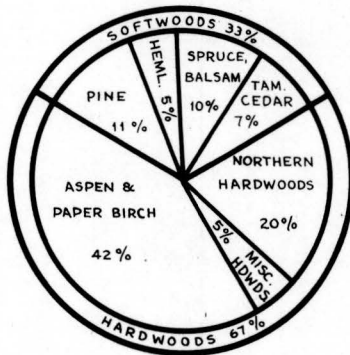
ALLOWABLE ANNUAL DRAIN (SAWTIMBER)



Growth surveys in northeastern Wisconsin indicate that cordwood forests, if protected, will add about 23 cubic feet, or 0.3 cord, per acre per year during the next decade. Growth varies between forest types. Fastest growth occurs in aspen (average 0.6 cord) and pine (average 0.4 cord) types. Northern hardwood stands average 0.3 cord per acre annual growth, while an acre of hardwood or coniferous swamp grows at the average rate of 0.2 to 0.25 cord per year. Some restocking areas, with proper care will add nearly one cord per acre per year.

Because most of the stands still will not be mature at the end of 10 years, cutting in the immediate future should be light --

PRESENT ALLOWABLE
ANNUAL DRAIN BY SPECIES



45,000 cords per year from merchantable trees is recommended. This light cut should give the remaining stands a chance to start rebuilding toward a more equitable distribution of age classes. Given proper protection the forest should yield 85,000 cords annually after 10 years, and 125,000 cords or more annually after 20 years. These figures presuppose a much larger cut of aspen than is now taken, and considerable reduction in the cuts of other species. The drain during the next 10 years should be composed of about two-thirds hardwood species and one-third softwoods, with aspen making up more than 40 percent of the entire amount. (Table 4, figure 5.)

FOREST INDUSTRIES

There are several forest industrial plants of medium to large capacity in Oneida County (fig. 3). The largest of these is at Rhinelander, a paper mill which uses nearly one-quarter of the entire amount of wood consumed in the county. Additional equipment now being installed at this plant will nearly double its present consumption. Less than one-fifth of the pulpwood, spruce and hemlock, used in this mill is produced locally, most of it being imported from other parts of Wisconsin and from Michigan, Minnesota, and Canada.

There are two other large wood-using plants in Rhinelander which have an annual production in excess of 10 million board feet. One of these, a sawmill, obtains but a small proportion of its logs from Oneida County, and the other, a veneer mill, imports its entire log supply.

Three other sawmills in the county have an annual cut of over a million board feet, and another three mills cut more than 100,000 feet of lumber. In addition there are usually 10 to 15 smaller portable mills operating in the county.

The total annual consumption of these local industries is about 155,000 cords. About 75,000 cords are obtained from forest lands within the county, while 80,000 cords--more than half--is imported from other parts of the Lake States or from Canada (fig. 4). These imports consist primarily of spruce pulpwood; hardwood, hemlock, and pine sawlogs; and hardwood veneer logs. Locally grown timber will

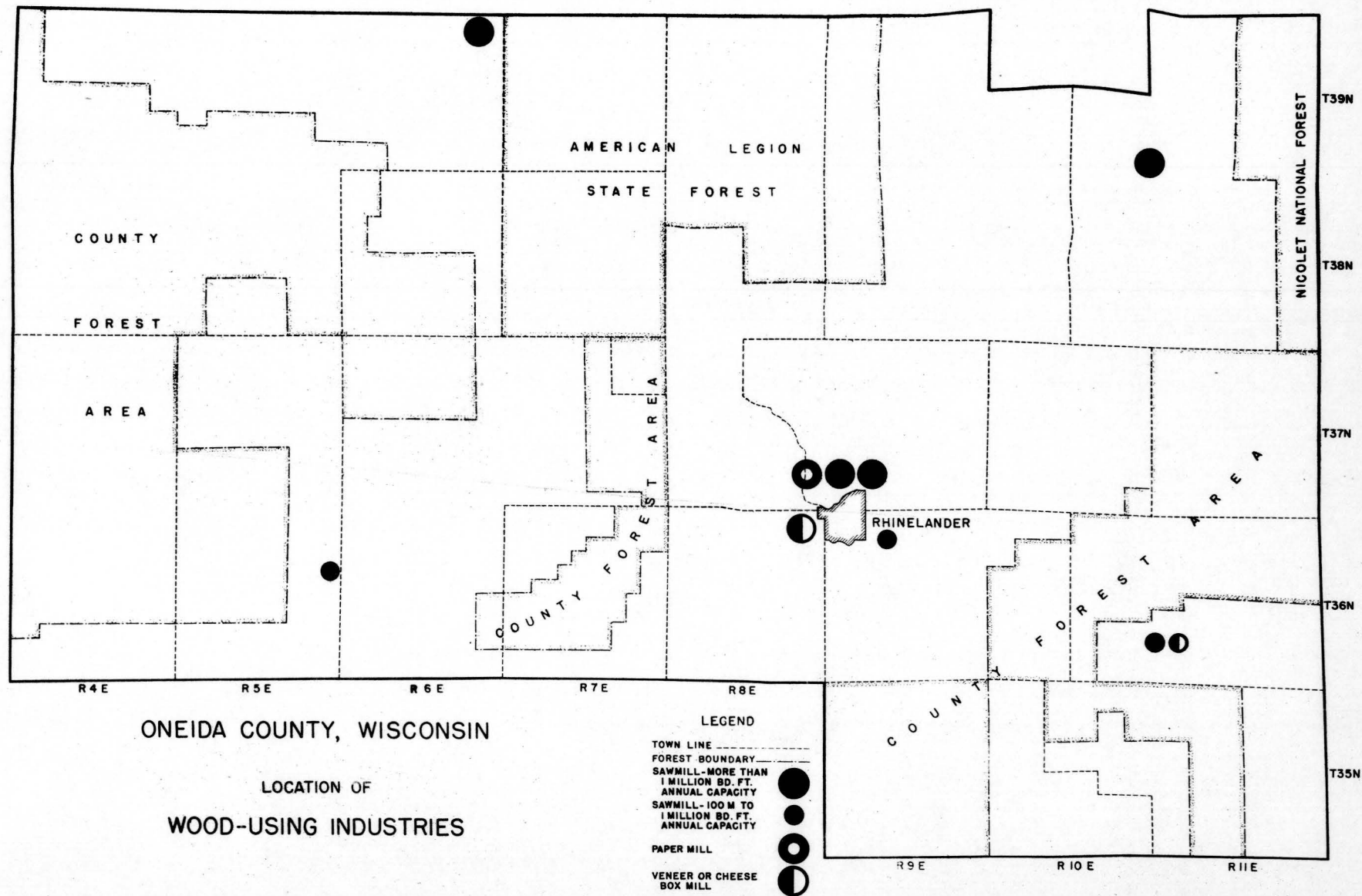


Figure 3

never be able to completely supplant these imports, but in another decade, if the forests are handled wisely, there should be sufficient local raw material to effect a noticeable reduction in imports.

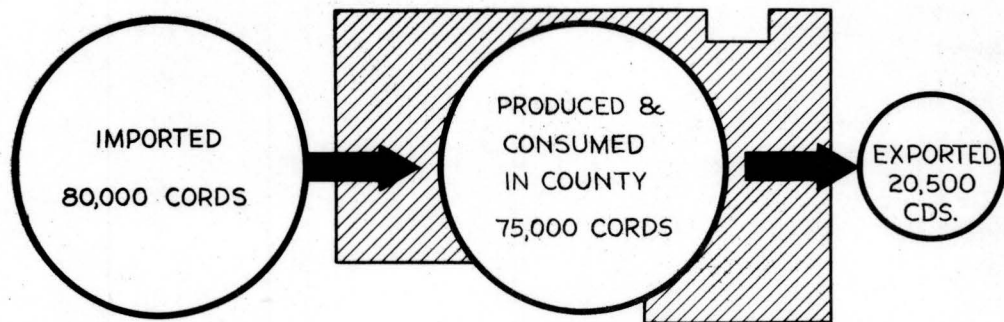


Figure 4.--Comparison of the import, export and production of timber in Oneida County.

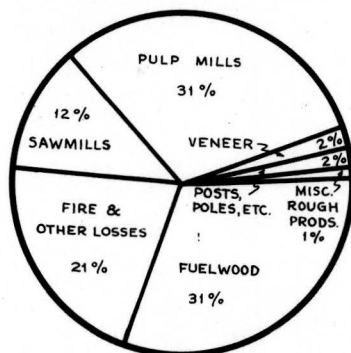
The forest industries contribute much to the economy of Oneida County. The 1930 Census lists 1,529 workers engaged in forestry, saw and planing mills, paper and other wood-using industries. This figure was 25 percent of all the gainfully employed persons in the county. The wood-using industries provide about 235,000 man-days of work annually. An additional 98,000 man-days are spent in cutting and hauling forest products. This is year-around work for about 1,000 men and part-time work (2 to 4 months) for 350 other workers, as well as odd-time jobs cutting fuel wood, posts, and similar products.

DRAIN ON FORESTS

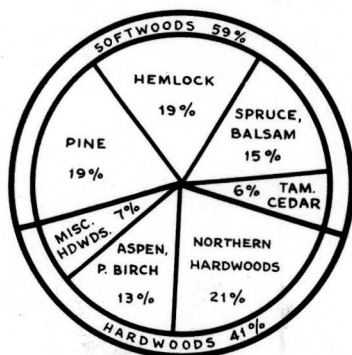
The annual drain on the forests of Oneida County is about 95,000 cords (table 4). The principal items of drain are fuel wood and pulp-

wood cuttings, each 31 percent of the total, and fire and other losses, which are 21 percent. Cutting for sawmills has declined greatly from earlier years and now causes only 12 percent of the drain. Veneer logs, posts, poles, and miscellaneous rough products are also cut in limited quantities.

ANNUAL DRAIN BY USE



ANNUAL DRAIN BY SPECIES



The drain is heaviest in softwood species--pine, hemlock, spruce, and balsam. Only 13 percent of the total drain is aspen and birch which make up 27 percent of the total stand.

The present drain is several times the allowable drain in most of the softwood species and is twice the allowable drain in the better hardwood species. In the case of aspen and paper birch, however, the present drain could be increased 50 percent without damage to the forest (fig. 5).

Table 4. Estimated annual consumption and loss of wood, and estimated allowable annual drain for Oneida County,
Wisconsin

Use	Pine		Hemlock		Spruce balsam		Tamarack cedar		Northern hardwoods		Aspen, paper birch		Mis- cellaneous hardwoods		All species		Total
	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Thou-</u> <u>sand</u> <u>bd.ft.</u>	<u>Cords</u>	<u>Cords</u>
Saw-																	
mills 1/	970	970	960	960	.....	.....	10	.....	970	1,940	90	.....	70	140	3,070	4,010	11,380
Pulp-																	
mills 2/	.....	10,000	.....	6,500	.....	13,000	.....	.....	.....	.....	.....	500	.....	.....	.....	30,000	30,000
Veneer																	
mills 1/	.....	.....	.....	.....	.....	.....	.....	.....	260	520	130	.....	10	20	400	540	1,500
Posts,																	
poles,																	
cabin																	
poles 1/	500	260	.....	.....	.....	.....	.....	440	.....	10	.....	50	.....	100	500	860	2,060
Fuel wood	.....	780	.....	5,910	.....	.....	.....	3,700	.....	8,760	.....	6,720	.....	4,110	.....	29,980	29,980
Miscel-																	
laneous																	
rough																	
products 1/	50	20	.....	.....	.....	.....	.....	350	.....	.....	.....	.....	.....	.....	50	370	490
Fire and																	
other																	
losses 3/	510	1,190	670	1,000	.....	1,000	.....	1,000	1,180	3,560	.....	4,600	320	1,230	2,680	13,580	20,010
All use...	2,030	13,220	1,630	14,370	.....	14,000	10	5,490	2,410	14,790	220	11,870	400	5,600	6,700	79,340	95,420
Total																	
cords....	18,090		18,280		14,000		5,510		20,580		12,400		6,560		95,420		
Allowable																	
drain,																	
cords 4/	4,700		2,400		4,400		3,300		8,800		19,100		2,300		45,000		

1/ Average for 1936 to 1939 inclusive.

2/ Estimated for 1940.

3/ Average for 1930 to 1940 inclusive.

4/ Average for 1941 to 1951 inclusive.

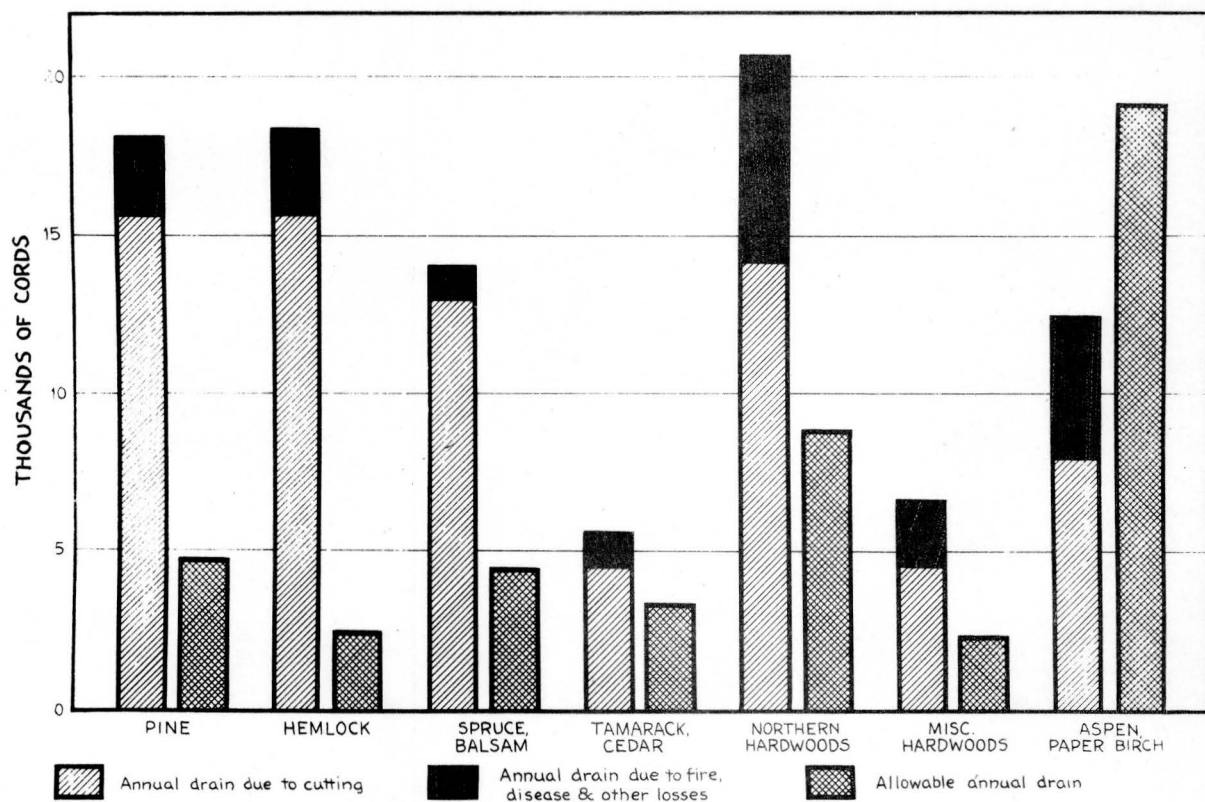
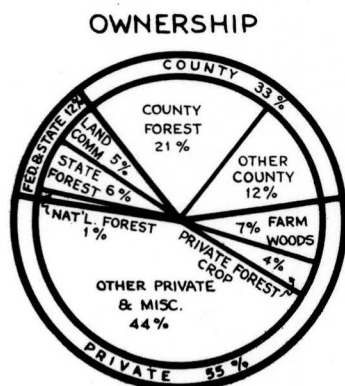


Fig.5. COMPARISON OF ANNUAL DRAIN WITH ALLOWABLE DRAIN BY SPECIES (Table 4)

FOREST OWNERSHIP

Of the 667,000 acres of forest, brush, and waste land in the county, 45 percent is off the tax roles and is controlled by the federal, state, or county government. More than 60 percent of this publicly owned forest land is in national, state, or county forests.

Table 5.--Ownership of forest land in
Oneida County



		Percent
Federal	7,000 acres	1
State	70,000 "	11
County	220,000 "	33
Private	370,000 "	55
	667,000 "	100

Federal Land

Practically all of the federal land in Oneida County is in the Nicolet National Forest (fig. 6). At the present time only 7,000 acres, about one-third of the land within the national-forest boundary, is federally owned, but even if it were all in federal ownership it would amount to only 3 percent of the forest area of the county.

The national-forest land is intensively managed for timber production, recreation, and game and watershed protection. Most of the timber sales are made to local inhabitants, a practice that has noticeably lessened the relief load in many forest communities. Twenty-five percent of the revenue from timber sales is given to the local governments.

State Land

About 70,000 acres of land are owned by the State of Wisconsin. Forty-six percent of this is school lands and other areas held by the State Land Commission, and the remaining 54 percent is Conservation Commission land (fig. 7).

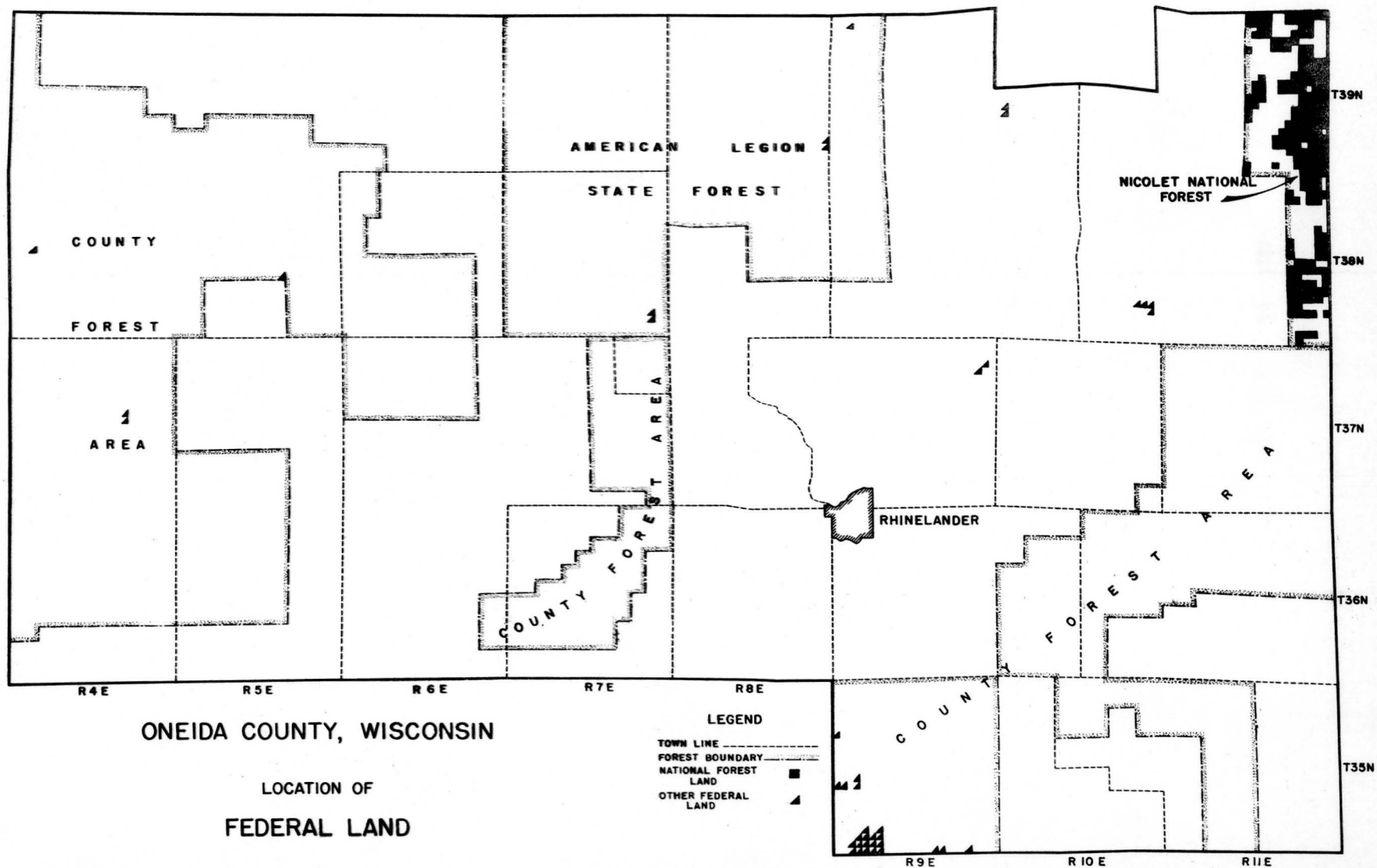


Figure 6

Some of the best timber in the county is on the school lands. This land is available for outright sale, but common belief is that appraisal is kept so high as to discourage its disposal. When sales are made, the bids on stumpage are compared with a stumpage appraisal made by the State cruiser, who is the field officer immediately responsible for the land. No restrictions are made on cuttings in these sales, nor are any improvements made upon the land while it is in the hands of the State. Fire protection on these areas is a function of the Conservation Commission.

A large share of the land controlled by the Conservation Commission is within the boundaries of the American Legion State Forest, in the northern part of the county. An agreement now pending between the Conservation Commission and the Oneida County Board of Supervisors will augment the Commission's holdings in or adjacent to the State Forest by approximately 10,000 acres of forest land now in county ownership. In return about 7,000 acres of Conservation Commission land outside the State Forest boundaries will be turned over to the county.

Work on the State Forest is restricted largely to forest planting and to recreational and administrative improvements. So far, no timber-sale policy has been in force, although there are many merchantable and near-merchantable second-growth stands on State land in the State Forest.

County Land

One-third of the forest land in Oneida County is controlled by the county (fig. 8). This is largely cut-over land which has reverted to the county through tax-forfeiture proceedings. Some of it now, particularly in the southeastern part of the county, supports fairly good second-growth stands of merchantable size. In the west, hundreds of acres of the county land sustain poor stands of inferior aspen. Much of this type of land has been planted to pine.

About 138,000 acres of county land has been entered as county forest crop land and is now managed as county forest. An additional 7,000 acres of Conservation Commission land may soon be added to this area in the land exchange previously mentioned. The general policy of the county is to enter as forest crop land all county land within the boundaries of the county forest areas, except where such land may be more valuable for recreation or other purposes. The possibility is strong that the county forest boundaries will be extended to include blocks of county land adjacent to forest areas and which are zoned for restricted use.

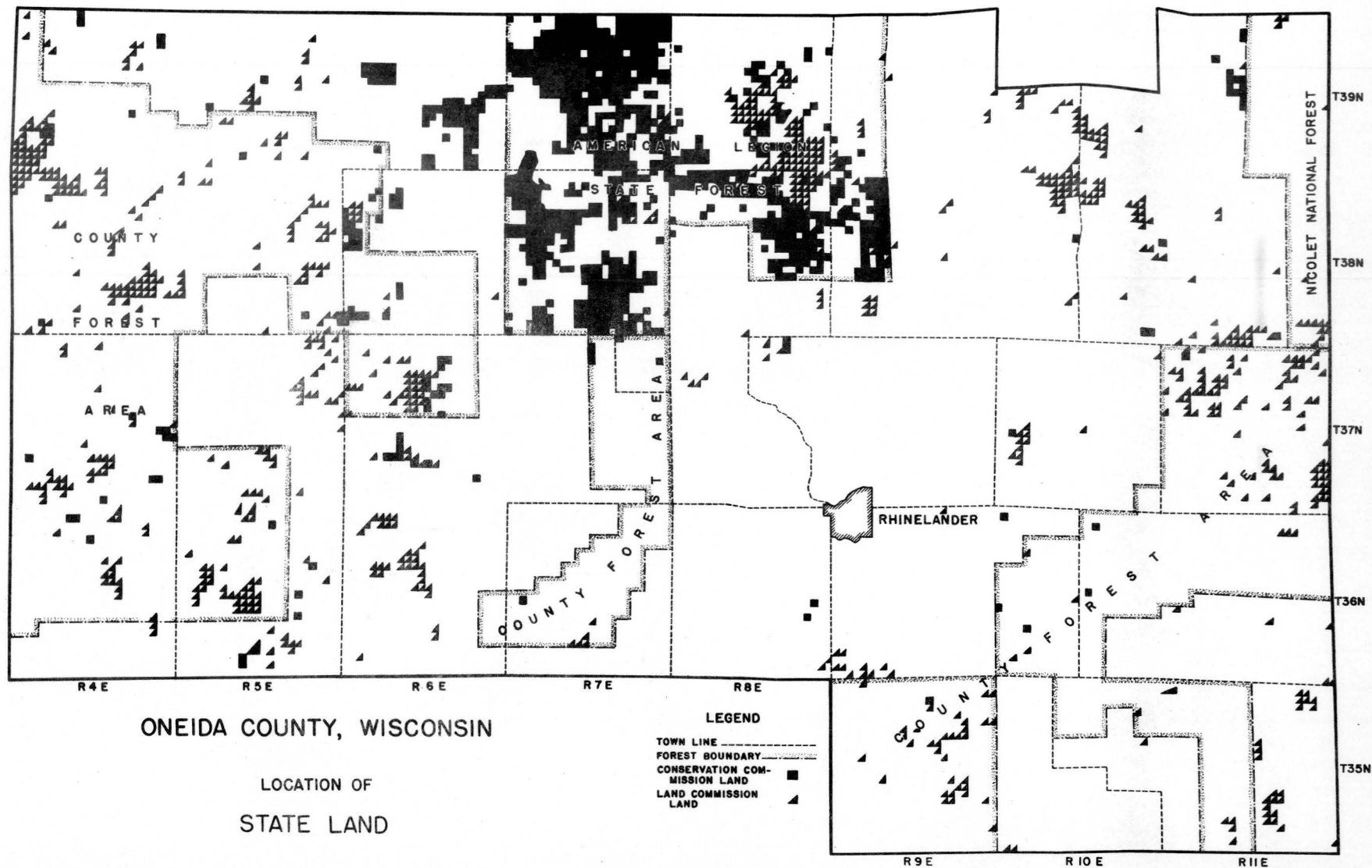


Figure 7

The county forests are under the supervision of a District Forester, employed by the Conservation Commission. He is assisted by another forester working out of the County Agricultural Representative's office. Fiscal and policy matters are controlled by the County Board, with the advice of the forestry subcommittee of the Board, and of the County Agricultural Representative.

According to the provisions of the State law, the county receives 10 cents per acre annually from the State for all land designated as county forest. These funds must be spent on the county forest, but are not restricted as to activity. The Oneida County forest budget includes items for salaries, equipment, planting, timber stand improvement work, fire protection measures (fire suppression is primarily a service of the Conservation Department), recreational development, and acquisition of recently cut-over areas where such land will block in county forests and reduce administrative costs.

Several dozen timber sales are handled in the county forests each year. So far these have been relatively small sales which have been taken by small operators and settlers. In nearly all cases, bids from county residents are favored over those from residents of neighboring counties. Cutting and slash-disposal regulations are enforced on the timber-sale areas. Revenue from the sales is deposited in the general county fund. In 1940 approximately \$2,000 was made available to the county by this means, and this amount is expected to be exceeded in 1941.

Revenue from the sale of material cut in salvage or in stand-improvement operations is applied directly to the job on which the material was cut and is not turned into the general county fund. In this manner, \$1,500 to \$2,000 may be added to the annual budget, and considerably more work can be done in the forest than the regular state grant could cover. Local hired labor is used on much of the work in the county forests. Whenever possible, priority is given to jobs located in areas where the relief load is heavy and the work is carried on at the time of year when other employment is scarce. This policy has effectively reduced the burden on local relief agencies.

Of the other 82,000 acres of forest land controlled by the county, about 10,000 acres within or adjacent to the American Legion State Forest may soon be turned over to the Conservation Commission in the land trade previously mentioned. This reduction in the amount of county land may soon be compensated, however, by additional tax forfeiture of cut-over land now in private ownership. In 1940 Oneida County had the highest tax-delinquency rate of any county in Wisconsin.

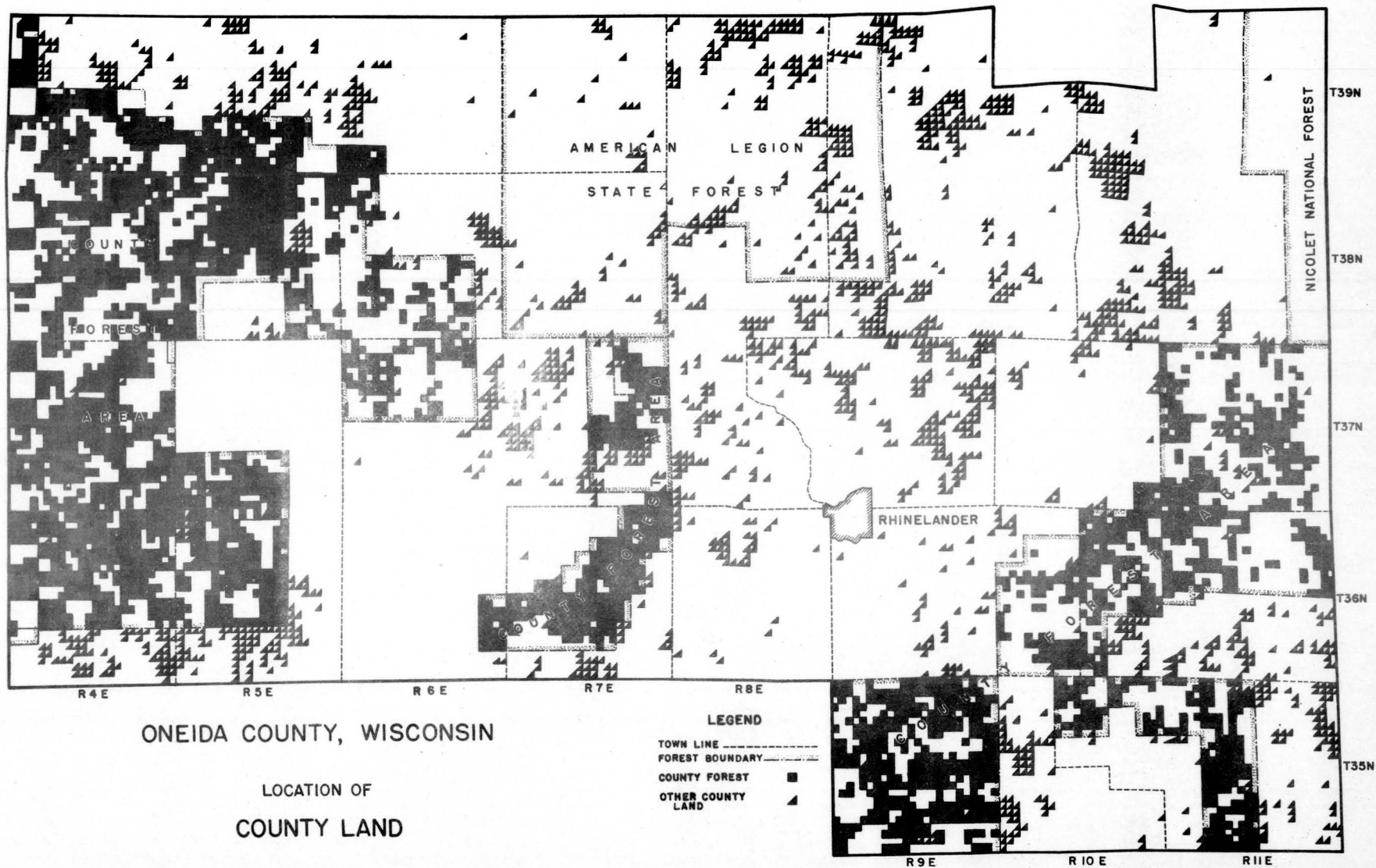


Figure 8

All of this county land outside the county forests is available for outright sale provided the County Board is satisfied that the prospective purchaser will respect the zoning ordinance. An additional restriction in these sales provides that, except to make room for improvements, or for salvage or stand improvement, no timber may be cut off the land for 10 years after the date of purchase. This regulation was adopted by the County Board several years ago when a study of tax delinquency and forfeiture indicated that about 60 percent of all land sold for taxes to private individuals was stripped of its timber and then allowed to revert to the county via the tax-forfeiture route. No exact information is available as to what change this "10 years before cutting" stipulation has made in the sale of county land, but indications are that the type of purchaser has changed since the regulation became effective. Where formerly many of the sales were to small timber operators, now most of the land is sold to large holdings and to individuals or clubs for hunting, fishing, or other recreational purposes.

Private Land

The privately owned forests of Oneida County are divided as follows:

	<u>Acres</u>
1. Private forest crop land.....	26,000
2. Other private forest land.....	295,000
3. Farm woods.....	49,000

While the private forest crop land comprises only a small proportion of the total forest area of the county, it is the only part of the private land upon which forest regulation is enforced. This land entered under the Wisconsin forest crop law is carried at a relatively low, fixed tax rate, and a severance tax is imposed when the timber is harvested.

Nearly all of the private forest crop land in Oneida County is held by one pulp and paper company (fig. 9). This is mainly sandy land in the western part of the county, which supports young natural stands of jack pine or plantations of this species. Interspersed with their forest crop land, this company also owns approximately 20,000 acres of other forest land on which more nearly mature stands of pine are now present. The company plans eventually to hold about 60,000 acres of pine land in this vicinity, and to manage it and another tract in adjoining Lincoln County on a sustained-yield basis. This area should be able to supply half of the mill's annual consumption.

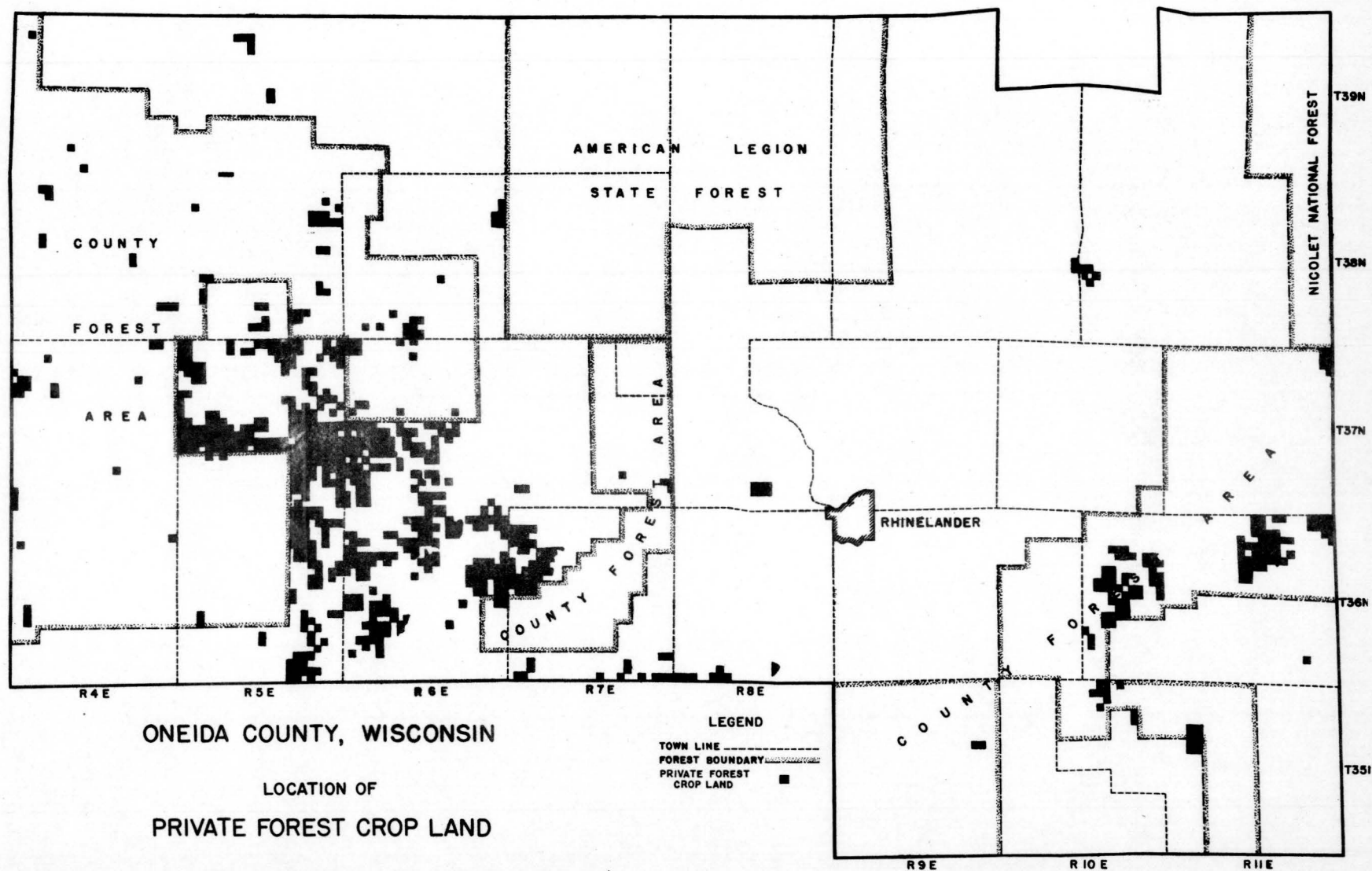


Figure 9

The rest of the private forest land in the county comprises areas being held for timber, cut-over land (much of this is tax delinquent), recreation sites, and industrial land on the margins of reservoirs.

The farm woods in Oneida County are not very extensive. More than one-fifth of the area is grazed, poorly stocked, cut-over land with little immediate promise of forest development. Much of this will probably become stump pasture. The other four-fifths of the farm-woods area is primarily medium-stocked, second-growth stands, but few of which are now merchantable. Immediate income from this land is more likely to be from AAA payments for stand improvement, planting, and fencing out stock, than from forest crops, although many of the farm woods will yield a few cords from scattered merchantable trees. There is, however, every indication that many of these farm woods can do considerably better than to pay their own taxes, once the stands have developed a fair growing stock.

CONCLUSIONS

1. Forestry is an essential part of local economy of Oneida County.

Eighty-six percent of this land is not farm land but is mainly forest and swamp. Half of the county's 900 farmers have insufficient crop land to make a living -- must depend in part on outside work (forestry, tourist, business, etc.). Sawmills, paper mills, and veneer plants are important sources of local wealth.

2. The virgin forests have been practically all cut-over. It will not be possible to maintain all industries at the level of recent years unless raw materials can be obtained from outside areas.

3. However, it will not be necessary to wait 60 or 80 years to get returns from good forest management. More than 40 thousand cords of wood per year can be harvested right now, and if proper cutting methods are used this yield can be doubled in 10 years, trebled in 20 years. A large part of the forestry job will fall to public agencies.

4. The national-forest acreage within Oneida County is negligible--about 1 percent of the total. Whether the federal boundaries should be altered in any respect and whether the mixed ownership within the boundaries should be acquired by the U. S. Forest Service is a question the Land Use Planning Committee should consider at an early date.

5. State holdings are scattered and come under two separate jurisdictions in State government. Steps should be taken to consolidate these holdings (possibly enlarge them) and put them all under a plan of sustained-yield management.

6. The county owns 220,000 acres of forest land and this acreage is growing steadily greater. But only 138,000 acres have been put under management as county forests. The county should consider some possible additions to county forests and should develop a definite plan for handling the forested tracts outside of formally declared forests. Many of these would yield revenue to the county, if protected and managed under a lease or timber-sale policy.
7. About 15 percent of the 370,000 acres of private forest land is purposefully managed for continuous forest yields. The rest receives little care other than State and federal fire protection. The County Committee should consider the possibility of controlling practices on private lands through a special clause in the zoning ordinance.
8. The County Committee should give careful consideration to several federal projects which, through adaptation to special local conditions can help to improve the forest situation in the county. Notably:
- (a) Use of AAA allotments for wood-lot improvement. Recognition of a special woodland base has been proposed in some states.
 - (b) Use of Farm Security and SCS funds to bring about constructive resettlement.
 - (c) Use of Farm Security funds to "grubstake" woods operators as at Hiles.
 - (d) Use of WPA to supplement farm income rather than to maintain workers full time. Settlers might be employed on nearby forest improvements.
 - (e) Use of federal credit to stimulate forest management by paper and pulp companies.

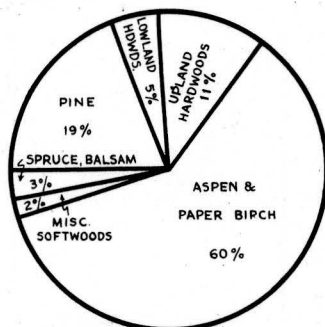
APPENDIX

Table 6.--Stand tables for aspen cover type (average for northeastern Wisconsin, Unit 1)

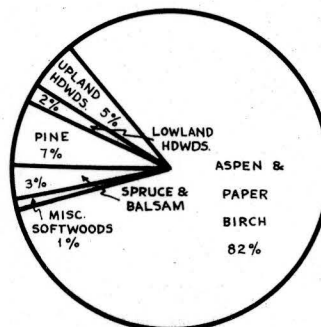
RESTOCKING STANDS								
	Number of trees per acre, by species							
D.b.h.	Pine	Spruce balsam	Tama- rack, cedar	Hemlock	Upland hard- woods	Lowland hard- woods	Aspen, paper birch	All species
Inches								
4	0.9	0.7	0.1	0.1	3.2	1.6	64.0	70.6
6	.5	.3	.1	.1	0.5	0.4	9.3	11.2
8	.3	.1	.....	.....	.2	.1	1.2	1.9
10	.2	.....	.....	.....	.1	.1	0.3	0.7
12+	.2	.....	.....	.....	.1	.....	.1	.4
Total	2.1	1.1	0.2	0.2	4.1	2.2	74.9	84.8
CORDWOOD STANDS								
4	6.9	11.8	1.0	0.2	12.6	14.2	118.2	164.9
6	2.5	3.4	0.4	.3	4.2	2.9	79.5	93.2
8	1.1	0.7	.1	.2	1.3	0.6	27.0	31.0
10	0.8	.2	.....	.1	0.3	.2	5.6	7.2
12	.2	.....	.....	.1	.1	.1	0.9	1.4
14	.2	.....	.....	.....	.1	.....	.2	0.5
16+	.1	.....	.....	.....	.1	.....	.1	.3
Total	11.8	16.1	1.5	0.9	18.7	18.0	231.5	298.5

PROPORTION BY SPECIES OF TOTAL VOLUME IN ASPEN COVER TYPE

Restocking Stands



Cordwood Stands



Saw-timber Stands

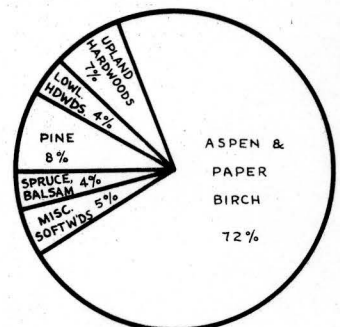
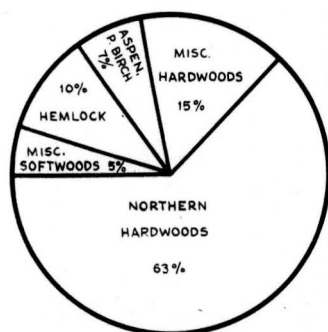


Table 7.--Stand tables for northern hardwood cover type (average for north-eastern Wisconsin, Unit 1)

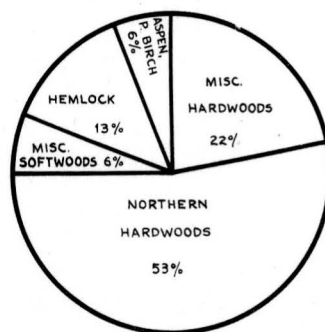
RESTOCKING STANDS								
Number of trees per acre, by species								
D.b.h.	Pine	Spruce balsam	Tamarack, cedar	Hemlock	Northern hardwoods	Miscel- laneous hardwoods	Aspen, paper birch	All species
Inches								
4	0.1	1.5	0.4	1.8	20.1	15.6	11.1	50.6
6	.....	0.7	.1	1.0	5.1	4.1	2.5	13.5
8	.....	.2	.1	0.8	2.9	1.3	0.5	5.8
10	0.1	.1	.1	.7	2.3	0.6	.2	4.1
12+	.....	.....	.....	.4	2.5	.4	.2	3.5
Total	0.2	2.5	0.7	4.7	32.9	22.0	14.5	77.5
CORDWOOD STANDS								
4	1.7	7.0	1.0	13.6	52.5	29.0	3.8	108.6
6	0.6	4.0	1.4	10.6	28.9	17.8	3.5	66.8
8	.5	1.1	0.4	5.6	16.4	9.9	1.5	35.4
10	.5	0.2	.2	2.2	6.6	3.3	1.2	14.2
12	.1	.....	.3	0.5	2.8	1.2	0.3	5.2
14	.1	.....	.....	.1	1.0	0.2	.1	1.5
16+	.....	.....	.....	.1	0.7	.1	.1	1.0
Total	3.5	12.3	3.3	32.7	108.9	61.5	10.5	232.7

PROPORTION BY SPECIES OF TOTAL VOLUME IN NORTHERN HARDWOOD COVER TYPE

Restocking Stands



Cordwood stands



Saw-Timber Stands

